

What is claimed is:

1 1. A method for detecting an abnormality of an optical module
2 comprising the steps of:

3 (a) detecting a value of a current flowing through a specified
4 spot of the optical module;

5 (b) holding the detected value of the current in a memory;

6 (c) detecting a value of a current flowing through the specified
7 spot at every predetermined time;

8 (d) obtaining a differential value between the value of the
9 current held in the memory and the value of the current newly detected;
10 and

11 (e) generating alarm signal indicating a necessity of
12 preventive maintenance when the obtained differential value exceeds
13 a predetermined threshold value.

1 2. The method for detecting an abnormality of an optical module
2 according to claim 1,

3 wherein the value of the current flowing through the specified
4 spot is a value of a current in a power line for supplying power
5 to the optical module.

1 3. The method for detecting an abnormality of an optical module
2 according to claim 1,

3 wherein the value of the current flowing through the specified
4 spot is a monitor current value of an optical output of the optical
5 module.

1 4. The method for detecting an abnormality of an optical module
2 according to claim 1,

3 wherein the value of the current flowing through the specified
4 spot is a value of a bias current of the transmission light source.

1 5. The method for detecting an abnormality of an optical module
2 according to claim 1,

3 wherein the value of the current held in the memory is a value
4 of a current flowing through the specified spot at the start time
5 of the use of the optical module.

1 6. The method for detecting an abnormality of an optical module
2 according to claim 1,

3 wherein the value of the current held in the memory is
4 overwritten to the value of the current which is newly detected in
5 the specified spot when a differential value is obtained.

1 7. The method for detecting an abnormality of an optical module
2 according to claim 1,

3 wherein the detected value of the current flowing through the
4 specified spot of the optical module is an average value of currents
5 for the predetermined time.

1 8. A method for detecting an abnormality of an optical module
2 comprising the steps of:

3 (a) detecting a value of a current flowing through a specified
4 spot of the optical module;

5 (b) holding the detected value of the current in a memory;

6 (c) newly detecting a value of a current flowing through the
7 specified spot at every predetermined time;

8 (d) obtaining a ratio of a differential value between the value
9 of the current held in the memory and the value of the current newly
10 detected to the value of the current held in the memory; and

11 (e) generating alarm signal indicating a necessity of
12 preventivemaintenance when the obtained ratio exceeds a predetermined
13 threshold value.

1 9. An apparatus for detecting an abnormality of an optical module
2 comprising:

3 a current detector which detects a value of a current flowing
4 through a specified spot of said optical module;

5 a memory which holds the value of the current detected by said
6 current detector;

7 an arithmetic circuit which obtains a differential value
8 between the value of the current held in said memory and a value
9 of a current newly detected by said current detector; and

10 an alarm circuit which generates alarm signal indicating a
11 necessity of preventive maintenance when the differential value
12 obtained by said arithmetic circuit exceeds a predetermined threshold
13 value.

1 10. The apparatus for detecting an abnormality of an optical module
2 according to claim 9.

3 wherein the value of the current flowing through the specified
4 spot is a value of a current in a power line for supplying power
5 to said optical module.

1 11. The apparatus for detecting an abnormality of an optical module
2 according to claim 9,

3 wherein the value of the current flowing through the specified
4 spot is a value of a current of a transmission light source.

1 12. The apparatus for detecting an abnormality of an optical module
2 according to claim 9,

3 wherein the value of the current held in said memory is a value
4 of a current flowing through the specified spot, the value of the
5 current being detected by said current detector at the start time
6 of the use of said optical module.

1 13. The apparatus for detecting an abnormality of an optical module
2 according to claim 9,

3 wherein said current detector detects a value of a current
4 flowing through the specified spot at every predetermined time, and
5 sends out the detected value of the current to said memory.

1 14. The apparatus for detecting an abnormality of an optical module
2 according to claim 9,

3 wherein said memory includes a first memory and a second memory,
4 said first memory receives and holds a value of a current from
5 said current detector, and sends out the value of the current held
6 until then to said second memory,

7 said second memory holds the value of the current sent from
8 said first memory, and

9 said arithmetic circuit obtains a differential value between
10 the values of the currents held in said first memory and said second

11 memory.

1 15. The apparatus for detecting an abnormality of an optical module
2 according to claim 9,

3 wherein said current detector detects an average value of
4 currents flowing though the specified spot for a predetermined time
5 as a value of a current.

1 16. An apparatus for detecting an abnormality of an optical module
2 comprising:

3 a current detector which detects a value of a current flowing
4 through a specified spot of said optical module;

5 a memory which holds the past value of the current detected
6 by said current detector;

7 an arithmetic means which obtains a ratio of a differential
8 value between said past value held in said memory and a value of
9 a current detected at present by said current detector; and

10 alarming means which generates alarm signal indicating a
11 necessity of preventive maintenance when the ratio obtained by said
12 arithmetic means exceeds a predetermined threshold value.